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June 30, 1999

TO: File

THRU: Joe Helfrich, Permit Supervisor *QH*

THRU: Daron Haddock, Permit Supervisor *NOQ74*

FROM: Robert Davidson, Soils Reclamation Specialist *RAD*

RE: Revised Reclamation Plan Amendment, PacifiCorp, Deer Creek Mine, ACT/015/018-99C, Folder #2, Emery County, Utah

TECHNICAL ANALYSIS:

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Topsoil Substitutes and Supplements

No topsoil was salvaged at the Deer Creek site, and therefore, construction fills within the the surface disturbance area will be used as substitute topsoil. The Deer Creek Mine was developed prior to the Surface Mining Reclamation Control Act (SMRCA) and topsoil was not salvaged or stockpiled during construction activities. The amendment states that no other topsoil is available for reclamation and that soil material will be obtained from the existing fills within the surface disturbance area.

The existing MRP contains several commitments for obtaining and characterizing Substitute Soils within the Deer Creek Mine surface disturbance area. These commitments include a Reclamation Sampling and Operational Sampling programs.

Reclamation Sampling Program

After mining and prior to reclamation, (1) a sampling program will be implemented to

determine the extent of suitable substitute topsoil material and (2) identify acid and toxic-forming materials. The plan discusses 13 sampling sites (SS1 thru SS13) which are identified on Map 3-9 (Drawing DS202E), Deer Creek Mine Surface Yard Map. *The following are needed for the Reclamation Sampling Program:*

- *The plan must clarify sampling procedures on how samples will be taken, depth of sampling, soil horizon designation, composite requirements, etc.*
- *Sampling sites (SS1 thru SS13) must identify substitute topsoil by delineating the quality and quantity of the soil materials.*
- *Sampling must be performed by a Certified Professional Soil Scientist or a qualified Soil Scientist. In the later case, sufficient information must be submitted with the amendment to enable the Division to determine the qualifications of the Soil Scientist for conducting a soil survey according to the standards of the National Cooperative Soil Survey.*
- *Sampling must be performed and reported by depth intervals sufficiently to characterize surface and subsurface materials.*
- *Data generated during sampling, mapping, and analysis must be used to prepare a substitute topsoil map identifying substitute soils, depth of salvage.*
- *The substitute topsoil map must be correlated with a reclamation cut and fill map to ensure that substitute topsoil are adequately identified for salvage and placement.*
- *Based on the surface disturbance acreage, an average replacement thickness needs to be specified for each area of reclamation.*

Operational Soil Sampling

Soil materials from fill slopes will be sampled every 5 years. The MRP commitments for sampling the fill slopes every 5 years have not been met. The only soil sampling periods included samples taken during 1980 and 1983. Appendix 2-A, Table 2-A lists soil sample analysis for disturbed, undisturbed and coal waste of the Deer Creek Mine area for years 1980 and 1983. The amendment states that soil tests on the disturbed and undisturbed areas and coal waste show that the materials in the portal area should support selected vegetative materials with the conclusion that procurement of borrow topsoil for reclamation is not needed. *Operational Sampling during the 1980 and 1983 periods did not follow the Division Guidelines for Topsoil and Overburden. Therefore, information contained in the amendment does not show that the fill materials in the portal area are suitable for achieving the revegetation standards. As mentioned under the Reclamation Sampling Program, sampling must delineate quality and quantity of soil*

materials. Sampling must be performed by a Certified and/or qualified Soil Scientist. Sampling must be performed and reported by depth intervals sufficiently to characterize the soils. If sufficient substitute topsoil cannot be identified within the disturbance area, then PacifiCorp will be required to import soil material of the quality and quantity necessary to achieve revegetation standards.

Findings:

Information provided in the application is not considered adequate to meet the requirements of this section of the regulations. The applicant must provide the following in accordance with:

R645-301-130, Sampling must be performed by a Certified Professional Soil Scientist or a qualified Soil Scientist. Sufficient information must be submitted with the amendment to enable the Division to determine the qualifications of the Soil Scientist for conducting a soil survey.

R645-301-224 and R645-301-233, The amendment and MRP must following the Division Guidelines for Topsoil and Overburden to adequately show and delineate the location, acreage, salvage depth and resulting volumes of substitute topsoil areas for both the Reclamation Sampling Program and for the Operation Sampling Program.

R645-301-232.720, If sufficient substitute topsoil cannot be identified and verified within the disturbance area to achieve successful reclamation, then PacifiCorp will be required to import soil borrow material of the quality and quantity necessary to achieve revegetation standards.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Soil Redistribution

The amendment states that reclamation at the site will be sequenced from top to bottom. The statement is made that available topsoil will distributed and the surface roughened by discontinuous tilling and/or deep gouging. *Surface roughening by "discontinuous tilling" is not understood. In steep terrain reclamation using rocky soils, tilling is not only impracticable, but*

impossible.

The amendment is unclear and inconclusive as to what logistics will be followed for obtaining or recovering any identified suitable substitute topsoil during reclamation. At one point, the amendment states that soil will be redistributed, but no information is given to salvaging any soils or suitable fills as substitute topsoil. Table 3-1, Reclamation Schedule, does not list soil salvage from vegetated slopes that will be re-contoured; nor does the table list soil replacement as referenced under sections R645-301-242: Soil Redistribution and R645-301-244: Soil Stabilization. In addition, section R645-301-541: General, does not list soil salvage and replacement. Section R645-301-553: Backfilling and Grading, does not list soil salvage and replacement.

Soil Nutrients and Amendments

The amendment identifies on-site fills as possible substitute topsoil. However, since sampling is incomplete and does not follow the Division's Guidelines for Topsoil and Overburden, data is inconclusive for making determinations for soil nutrients and amendments.

Soil Stabilization

After topsoil distribution, the surface will be roughened by deep gouging. Deep gouging creates depressions across the surface which increases water harvesting and helps reduce surface erosion. In addition, rock litter consisting of various sized rocks and boulders will be randomly placed on the slopes and/or nested into the soil to help control slope slippage. On slopes greater than 20%, a soil tackifier will be used to help stabilize surface soils.

Rills and gullies which develop to a depth of nine inches or greater in areas that have been regraded and topsoiled and which either; (1) disrupt the approved postmining land use or the reestablishment of the vegetative cover, or (2) causes or contributes to the violation of water quality standards for receiving streams will be filled, regraded, or otherwise stabilized. The topsoil will be replaced and the areas will be reseeded.

Refuse Pile Reclamation

The MRP states that refuse within the Deer Creek Portal surface disturbance area will be covered by less than four feet of material. *Since excess fills exist within the Deer Creek portal surface disturbance area, there is no logical reason why a minimum of four feet of material cannot be obtained for covering the refuse.*

Within the MRP's Chapter 3, page 3-65, Table 7, Deer Creek Mine - Waste Rock Analysis, several problems are identified associated with materials taken from roof and floor materials. *According to the Division's Guidelines for Topsoil and Overburden, unacceptable*

criteria are identified for Blind Canyon floor samples for SAR and pH. Poor criteria are met on Blind Canyon split samples for SAR and on Hiawatha floor samples for pH. Data is incomplete since no determinations were made for selenium or for Acid Base Potential.

The amendment Table 2-A-1, lists several samples taken in 1980 for Coal Waste. However, the data is incomplete and no final determination can be made by the Division concerning waste acceptability since no analyses are listed for selenium, boron, acid base potential, available water capacity, rock fragments, texture, % saturation, and % coal fines. In addition, no information is provided on how the samples were taken, or the sampling procedures involved. In order to make a finding on whether sampling represents the waste material, sampling protocol must be explained.

The Division cannot make a determination of waste acceptability since sampling is inadequate and does not follow the Division's Guidelines for Topsoil and Overburden. Sampling protocol must be explained. Sampling must be performed by a qualified person. Since toxicity is identified in roof and floor analysis, the refuse piles and coal mine waste must be covered with a minimum of four feet of the best available, nontoxic and noncombustible material.

Findings:

Information provided in the application is not considered adequate to meet the requirements of this section of the regulations. The applicant must provide the following in accordance with:

R645-301-242, Clearly and consistently describe within all applicable amendment sections the logistics that will be followed for salvaging and using any identified suitable substitute topsoil during reclamation.

R645-301-243, The amendment identifies on-site fills as possible substitute topsoil. However, since sampling is incomplete and does not follow the Division's Guidelines for Topsoil and Overburden, data is inconclusive for making determinations for soil nutrients and amendments.

R645-301-244, Define "discontinuous tilling." If tilling is being proposed, the amendment must describe and explain how tilling will be utilized and accomplished in steep terrain reclamation using rocky soils.

R645-301-553.252, R645-301-233, R645-301-120 and R645-301-130, The refuse piles and coal mine waste must be covered with a minimum of four feet of the best available, nontoxic and noncombustible material. Since excess fills exist within the Deer Creek portal surface disturbance area, there is no logical reason why a minimum of four feet of material cannot be obtained for covering the refuse. If less than four

Page 6
ACT/015/018-99C
June 29, 1999

feet is requested, the amendment and MRP must contain adequate information for the Division to make a determination of waste acceptability. Sampling must follow the Division's Guidelines for Topsoil and Overburden. Sampling protocol must be explained. Sampling must be performed by a qualified person.

RECOMMENDATION

The amendment application should not be accepted until the above deficiencies have been adequately addressed by the applicant

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